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CENTRAL INTELLIGENCE AGENCY

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SUBJECT Animal Husbandry

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1. In general, the climate of the Island of Formosa is tropical with a mountain range running from north to south dividing the Island into two parts, the western being the more highly developed agriculturally. Out of a total area of 35,961 sq km, 55 percent, or 19,900 sq km, is relatively level land and the remaining 45 percent is mountainous. Paddy fields comprise a total of approximately 513,000 ha and dry fields approximately 315,000 ha.

2. Particularly since the end of World War II, agriculture on Formosa has shown a substantial advancement. The climate is favorable for general agricultural products and the farming community is hard working and thrifty. The main agricultural crops are rice, sugar cane, livestock, sweet potato, tea, fibre crops and fruits. Rice and sugar cane, with 1,500,000 metric tons and 600,000 metric tons annual yields respectively, are the most important agricultural products of the Island. There are approximately 660,000 farm familes of which perhaps 38 percent are owner-farmers, 25 percent part-owners, and 37 percent tenants. When the present agrarian reforms are completed, the part-owner and tenant classification will disappear and all will become owners under the theory that the "land is for those who till it". Rice is harvested twice a year and sugar cane, chiefly in the south, is harvested 1½ years after each planting.

3. Animal husbandry is one of the most important industries of the Island. Hogs are raised as a side line by almost all farmers and there is a total hog population of more than 2,400,000 head, which is approximately four head per farm family. Working cattle total 400,000 head, of which 80 percent are water buffalos and the remainder yellow cattle. They are used principally for cultivating work. In addition, native goats are owned by nearly all farm families and are used principally for food. Each farm family also raises chickens, ducks and geese.

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Hog Raising

4. The raising of hogs on the Island became a principal source of food supply following the immigration of settlers from Canton and Fukien Provinces on the Mainland approximately 300 years ago. During the Japanese occupation the government encouraged the raising of hogs and did much to improve the industry as a whole. Since the end of World War II the Taiwanese Government, in cooperation with the JCRR /Joint Committee on Relief and Rehabilitation/, has done much to further the development, improving blood strains and assisting in disease control. As a result, hog raising ranks third in production value among all agricultural products of the Island. The hog population has increased from approximately 600,000 head seven years ago to the present high record of 2,400,000. Hogs are not raised as the sole business of the farmers but only as a side line.

5. The pedigrees of the original hogs introduced from Canton and Fukien have become very complicated and mixed and no attempt was made originally to maintain pure strains. Various foreign lines were introduced from time to time and in 1933 the government established breeding farms and developed a good strain of Berkshire hogs. At the present time a major percentage of the present hog population is comprised of the Berkshire hybrids.

6. The principal feeds for hogs are sweet potato, soybean cake, peanut cake, rice bran, sweet potato vine and vegetables. With the exception of the peanut and soybean cake most of these feeds are self-supplied by each farmer. During the Japanese occupation soybean cake was imported to the extent of 200,000 metric tons annually and had great influence on the hog raising industry on the Island. Fattened hogs, weighing from 60 to 90 kgs in from six to 12 months, are sold by the farmers either directly to the butchers or through the livestock market or farmers' cooperatives.

7. Since World War II the following steps have been taken to improve the hog industry:

   a. Eight livestock breeding farms were established and fully equipped by the government to improve the variety of the Berkshire boar.

   b. Berkshire pedigree records have been maintained starting in 1951, and efforts have been made to prevent inbreeding and to weed out inferior stock.

   c. Farmers' associations have been encouraged to establish secondary breeding stations to maintain superior breeding stock and control proper cross-breeding.

   d. Steps have been taken to make available artificial insemination, particularly in the districts where it is difficult to obtain proper breeding boars.

   e. Farmers have been instructed in the proper construction of boar shelters and sanitation practices.

   f. Efforts have also been made to maintain an improved native hog, particularly the Taoyuen variety.

   g. The government has subsidized the purchase of superior varieties of hogs by farmers.

   h. The government has established, and finances, hog industry demonstration stations.

Water Buffalo

8. In 1951 there were over 317,000 head of water buffalo on Formosa. They are regarded as the indispensable source for farm working, being especially suitable for work in the paddy fields. They are raised chiefly in the districts of Taichung, Tainan and Kaohsiung. There are conflicting stories as to the origin of these animals but they probably were brought in by the immigrants from Fukien and Canton 300 years ago. They are a robust animal and can stand poor and coarse feed. The hair is either dark grey or dark brown with the front legs below the knee and hock usually white. The skin is thick and the animals have black horns which curve over the head. Both body and chest are broad and the trunk is short. The cow weighs generally more than 400 kgs and castrated cattle in excess of 450 kgs.

9. Water buffalos feed mainly on wild grass, although sweet potatoes and rice bran are occasionally fed by the farmers. The breeding season is principally from August to February and cows and bulls are bred between the ages of three and 13 years and three and 14 years, respectively. The conception rate is highest from August to December and a calf is born 315 days after conception. The following are some of the recent measures instituted by the Department of Agriculture and Forestry for the improvement of the water buffalo industry:

   a. In 1951 a government regulation was adopted which controls the random slaughter of all cattle.

   b. 300 head of superior breeding bulls were allocated to the various farmers' associations for breeding purposes.

   c. Castration has been enforced as to all inferior bulls.

   d. Efforts were made to establish feeding meadows. Thus far two or three of such areas have been established.

   e. Township exhibitions or fairs have been held to exhibit superior calves and award prizes.

Yellow Cattle

10. The yellow cattle, having a physique similar to that of the water buffalo, are strong, gentle and clever, and are suitable for work in tropical climate. They are raised chiefly in the Hsinchu district. In 1899 there were approximately 53,000 head and by 1951 the number had grown to only 65,000 head, showing a tendency for very slow increase. The cattle are not as strong as the water buffalos and the beef is not the best for the table. There is a decided hump on the back of the bulls. The color is usually brown. The following specifications are average dimensions:

   a. Height: Cow - 114 cm
      Bull - 127 cm

   b. Breadth of Chest: Cow - 35 cm
      Bull - 38 cm

   c. Circumference of Chest: Cow - 159 cm
      Bull - 171 cm

   d. Trunk: Cow - 128 cm
      Bull - 137 cm

   e. Weight: Cow - 250 kgs
      Bull - 340 kgs

11. In an effort to increase the breed of the native yellow cattle, the government recently introduced 12 head of superior breeding stock of the Kankrej variety from India. These are now being propagated at the Hsinhwa Livestock Farm maintained by the Agricultural Research Institute. Distribution of superior breeding bulls, castration practices, the establishment of meadows and exhibitions of superior calves are carried out under government sponsorship in the same way as is mentioned under the heading "Water Buffalo".

Dairy Cattle

12. With a total number of only 600 head throughout the Island, dairy cattle are raised as a one-line business on a small scale in the suburban district of a few of the large cities on Formosa. During the Japanese occupation varieties of Holstein and Ayrshire were introduced but did not survive due mostly to the prevalence of ticks. After World War II some 72 head of various varieties of dairy cattle were introduced and efforts have been made to enforce sanitary precautions and improve equipment and barns. Both the National Taiwan University and the Taiwan Agricultural Research Institute have been making efforts to improve the dairy cattle, but no remarkable results can be reported thus far. The following factors are believed to prevent the improvement of the dairy industry on the Island:

a. Prevalence of Texas fever.

b. Failure of Japanese authorities to maintain a consistent policy for the industry.

c. The business is operated with meager capital, so it is sensitive to the rise and fall of feeding costs as well as imported dairy products.

d. Lack of experience and knowledge on the part of the farmers.

Goats

13. Most of the native goats were brought originally from South China. The hair is usually black, occasionally dark brown. They are small in build but sturdy and can stand hot weather. The main goat raising district on the Island is the region south of Taichung, with a total of 180,000 at the present time. From two to six head of goats are raised by nearly each farm family. They usually graze on the grasslands. Only rice bran is fed to a breeding buck or to a goat that is to be used for mutton for festival purposes. The male kid is castrated at about two weeks of age and is raised for mutton, while the ewe is bred between the ages of two and four and gives birth three times in two years with one or two kids at each birth.

Poultry

14. There were some 9,670,000 head of chickens in Formosa at the end of 1951. The majority of these were native varieties of various physiques and colors. They are raised usually as a side line with each farmer keeping from one to several dozen of them. The average chicken weighs only two or three pounds at six months of growth. In the rural community the chickens are permitted to roam freely during the daytime and couped up at night. The farmers lack proper sanitary knowledge and the chickens die easily flock by flock, and sometimes village by village, when epidemics are rampant. Efforts were made by the Japanese authorities to improve the industry by introducing foreign varieties but the program was not successful due, principally, to lack of sufficient knowledge of sanitation. Since World War II the government, with the cooperation of JCRR, has introduced hatching eggs of Plymouth Rock, Leghorn, Rhode Island Red and Nagoya varieties, which were then incubated and propagated at various livestock breeding farms. In addition, certain villages were used as centers for demonstrating cross-breeding between the native varieties and alien strains and some progress is being made.

15. There were approximately 3,000,000 head of ducks on the Island in 1951, comprised mostly of the native duck, the Muscovy and Tofan. The native duck lays more than 150 eggs a year, beginning laying at four months. Most of the ducks are raised as a side line by the farmers but in the coastal or riverside districts there are flocks of several hundred head raised by professionals. The Muscovy is of a gentle nature and weighs as much as three pounds at only four months growth. The Tofan, being a hybrid between the native female duck and the male Muscovy and without fecundity, weighs more than four pounds at four months growth and is used for meat on the Island.

Epidemic Control

16. The main livestock epidemics are hog cholera, swine erysipelas, swine plague, paratyphoid in pigs, fowl cholera, New Castle disease, white diarrhoea of chicken, and anthrax. The main parasites are trypanosmasis piroplusmosis, ascaris, stephanurus dentatuo, etc. Rinderpest was at one time completely under control on Formosa, in 1920, until October 1949 when it appeared in the suburb of Taipei. The virus was shown to be conveyed in by the hogs imported from the Hainan Island. Thanks to the fine cooperation between the government, JCRR and local authorities, this epidemic was completely checked by March 1950, which was the shortest period ever known before. Anthrax also broke out in the Taoyuen area in 1948 but was checked by thorough preventive injections. Trypanosomasis piroplusmosis being controlled by practicing annual livestock health examinations. Consequently, the victims of this parasite are few.

17. Main emphasis is placed by the government on the control of hog diseases, especially hog cholera and swine erysipelas. Hog cholera became prevalent following the end of World War II, due to the importation of many hogs from the China Mainland, and by 1949 had infected nearly 82,000 head throughout the Island. Outbreaks of this disease had gradually decreased, due to the efforts of the Government and JCRR, so that by 1951 infected hogs numbered only 26,700. Although not so serious as hog cholera, swine erysipelas presents a problem of concern. In 1950 there were 13,700 cases and in 1951 24,000 cases.

18. The following control measures have been adopted for hog cholera and swine erysipelas:

a. Establishment of veterinary serum institutes. A government agency, the Tamsui Veterinary Serum Institute, has been given a larger staff and better equipment. Two private institutes, the Hsinhsing Veterinary Serum Institute, and the Veterinary Serum Institute of the Kaohsiung Farmers' Association, were established in 1948 and 1949, respectively. The latter two institutes are assisted financially and technically by the Government and JCRR.

b. The establishment of virus eradication district. This program of preventive injections has been in effect since 1950. 310 virus eradication districts have been established throughout the Island and 2,185,000 head of hogs were vaccinated for hog cholera and 2,100,000 for swine erysipelas.

c. Establishment of diagnostic centers. Eight such centers were established in 1949 and seven additional ones in 1951. To become fully effective, each prefecture must have a center of this kind.

d. Training of veterinarians. Seven courses of training have been carried out under government sponsorship. In each training period more than 200 veterinarians are gathered together and given a refresher course in modern veterinary practices.

e. Recent developments in sanitary practices and livestock disease control have been circulated by pamphlets and posters among the farmers.

f. Two livestock quarantine centers, one at Kaohsiung and the other at Keelung, were constructed in 1949.

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Table I

Temperature, Rainfall and Humidity of Formosa

	Taipei			Taichung		
	Temperature	Rain	Humidity	Temperature	Rain	Humidity
January	15.2	9.0	84	15.7	3.5	81
February	14.8	13.5	84	15.6	6.5	82
March	16.9	18.7	84	18.1	11.0	83
April	20.7	16.7	83	22.0	12.6	82
May	24.1	22.0	82	25.2	22.5	82
June	26.6	29.2	81	26.8	35.2	82
July	28.2	22.9	78	27.7	29.1	80
September	26.2	23.1	80	26.4	14.1	80
October	22.9	11.7	81	23.7	2.1	78
November	19.8	6.4	81	20.4	1.7	78
December	16.8	7.4	83	17.3	2.6	80

	Tainan			Hengchun		
	Temperature	Rain	Humidity	Temperature	Rain	Humidity
January	16.9	2.1	79	20.3	2.3	74
February	16.9	3.7	79	20.4	3.2	74
March	19.6	4.4	79	22.2	2.3	74
April	23.3	6.4	79	24.6	4.3	76
May	26.2	17.3	80	26.5	18.0	79
June	29.3	36.6	84	27.3	37.4	84
July	27.8	37.7	85	27.5	49.0	84
September	27.0	15.9	82	26.7	28.2	82
October	24.7	3.0	79	25.3	14.0	76
November	21.6	1.7	78	23.3	3.4	73
December	18.4	1.7	79	21.3	1.6	73

	Taitung			Hwalien		
	Temperature	Rain	Humidity	Temperature	Rain	Humidity
January	18.9	33.9	74	17.2	5.8	78
February	18.9	4.3	75	17.4	8.5	80
March	20.6	6.3	77	18.9	11.3	81
April	23.3	7.3	80	21.7	11.9	82
May	25.2	17.7	82	24.1	20.9	85
June	26.9	18.7	82	26.2	16.0	84
July	27.4	35.0	81	27.2	27.8	81
September	26.4	28.5	80	25.9	25.3	81
October	24.4	17.5	77	23.4	24.0	78
November	22.1	5.4	75	21.0	10.0	77
December	20.0	3.8	74	18.7	6.7	78

Temperature (°C)
Rainfall (cm)
Humidity (%)

The figures for Taitung - 37 years average
The figures for Hwalien - 27 years average
The figures for Taipei, Taichung, Tainan & Hengchun - 41 years average

Enclosure (A)

Table 2

Comparison of Water Buffalo

Province	Sex	Number in Test	Height cm	Length cm	Heart Girth cm	Length/Heart Girth
Hunan	Male	47	130	135	180	0.75
	Female	69	121	129	170	0.76
Kweichow	Male	45	131	140	193	0.73
	Female	86	120	127	174	0.73
Szechwan	Male	51	133	143	194	0.74
	Female	81	123	130	175	0.74
Taiwan (Formosa)	Male	16	123.9	113.5	157.3	0.72
	Female	13	120.3	109.9	156.0	0.70

Table 3

Number of Hogs at the End of Each Year

Year	Female	Male	Castrated	Total
1942	342,989	148,989	866,321	1,358,299
1943	335,351	145,569	776,342	1,257,262
1944	249,188	95,889	516,894	861,971
1945	155,814	79,580	342,467	577,861
1946	234,012	100,814	432,760	767,586
1947	323,980	97,747	584,049	1,005,776
1948	346,129	134,529	686,179	1,166,837
1949	445,589	158,899	757,671	1,362,159
1950	488,679	165,274	966,005	1,619,958
1951	659,738	516,101	1,387,027	2,261,866

Table 4

Number of Cattle at the End of Each Year

Year	Water Buffalo	Yellow Cattle	Indian Cattle	Hybrid Cattle	Western Cattle	Total
1942	261,139	40,406	353	8,827	1,287	312,012
1943	272,650	40,661	292	9,699	1,369	324,671
1944	277,058	40,545	379	11,958	1,020	330,960
1945	243,482	36,479	214	8,190	2,549	290,914
1946	230,679	37,659	318	10,378	671	279,705
1947	245,553	42,246	593	8,675	592	297,659
1948	254,814	46,408	91	8,115	724	310,172
1949	294,645	53,054	217	8,625	775	357,316
1950	307,037	63,439	390	9,028	839	380,733
1951	317,597	65,089	390	10,248	853	394,182

Table 5

Number of Dairy Cattle and Quantity of Milk

Year	Milking Family at End of Year	Number of Dairy Cattle	Quantity (Hectoliter)
1942	74	1,726	30,876.00
1943	75	1,706	72,824.49
1944	75	1,776	26,614,75
1945	47	873	10,439.00
1946	53	607	9,078
1947	32	658	4,947
1948	31	502	9,554
1949	34	581	5,532
1950	39	539	5,636
1951	40	568	7,561

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Table 6

Number of Goats at End of Each Year

Year	Female	Male	Castrated	Total
1942	26,362	12,510	17,472	56,344
1943	32,495	15,179	16,190	63,864
1944	25,291	10,563	17,579	53,433
1945	31,706	15,656	20,799	68,161
1946	71,595	32,902	45,309	149,806
1947	91,620	50,075	34,308	176,003
1948	90,951	29,073	65,067	185,091
1949	88,268	23,490	67,612	189,370
1950	77,115	28,118	58,550	163,783
1951	82,227	3,122	72,484	185,933

Table 7

Number of Poultry at End of Each Year

Year	Chickens	Duck	Goose	Turkey	Total
1942	4,952,534	2,764,528	375,211	82,675	8,174,948
1943	4,542,599	1,896,233	418,134	83,519	6,940,485
1944	3,836,784	1,358,281	345,809	59,812	5,600,686
1945	3,997,525	1,136,054	1,830,112	61,299	7,024,990
1946	4,555,271	1,646,745	755,894	93,753	7,051,663
1947	5,119,125	2,246,642	758,915	99,660	8,224,342
1948	4,525,486	1,984,657	822,166	101,548	7,433,857
1949	4,988,887	2,216,686	986,802	124,185	8,316,560
1950	5,142,514	2,547,351	1,037,025	146,582	8,873,472
1951	5,387,377	2,991,414	1,132,171	165,807	9,676,769

Table 8

Number of Livestock Slaughtered

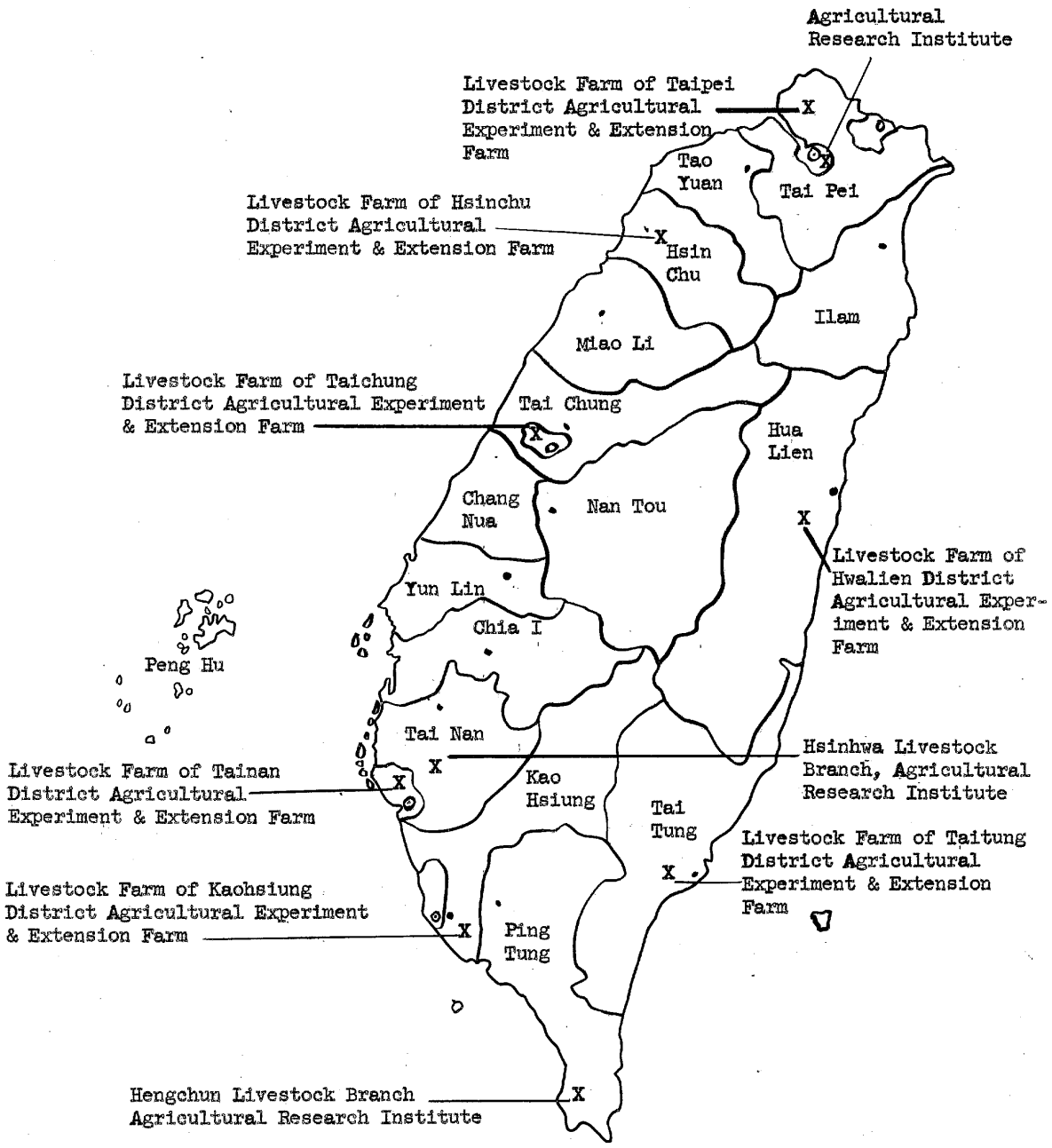
Year	No. of Slaughtering Houses at End of Each Year	Number of Hogs	Number of Goats	Number of Water Buffalo	Number of Yellow Cattle	Number of Hybrid Cattle
1942	736	673,220	21,480	25,488	8,031	1,271
1943	736	724,329	36,826	11,392	4,420	594
1944	543	420,654	23,315	13,408	3,496	423
1945	606	358,370	48,811	10,772	1,851	270
1946	675	303,307	21,800	9,836	1,190	77
1947	641	378,288	44,027	10,402	1,978	-
1948	632	540,691	33,369	11,507	2,082	376
1949	581	555,565	23,884	10,474	2,572	250
1950	492	905,311	30,920	13,070	3,664	414
1951	585	1,173,926	26,260	21,311	8,483	319

Table 9

Contagious Diseases of Livestock

Year	Outbreak of Hog Cholera	Swine Plague	Swine Erysipelas	Poultry Cholera	New Castle Disease	Anthrax	Surra	Brucellsis Bovis
1942	1,260	7	- -	21,767	4,206	-	-	-
1943	7,338	65	- -	5,923	442	-	-	-
1944	11,292	37	- -	7,569	2,223	-	102	-
1945	2,854	-	- -	1,278	-	5	4	-
1946	15,700	23	- -	3,414	94	-	1	-
1947	81,724	1,542	65	17,174	1,383	-	108	28
1948	32,845	2,025	407	14,118	2,166	10	64	90
1949	21,199	812	875	11,908	1,550	9	34	82
1950	18,540	3,077	13,701	136	2,921	4	21	-
1951	26,776	7,495	24,089	1,987	3,536	6	7	-

Distribution of Provincial Livestock Farms in Taiwan



Enclosure (B)

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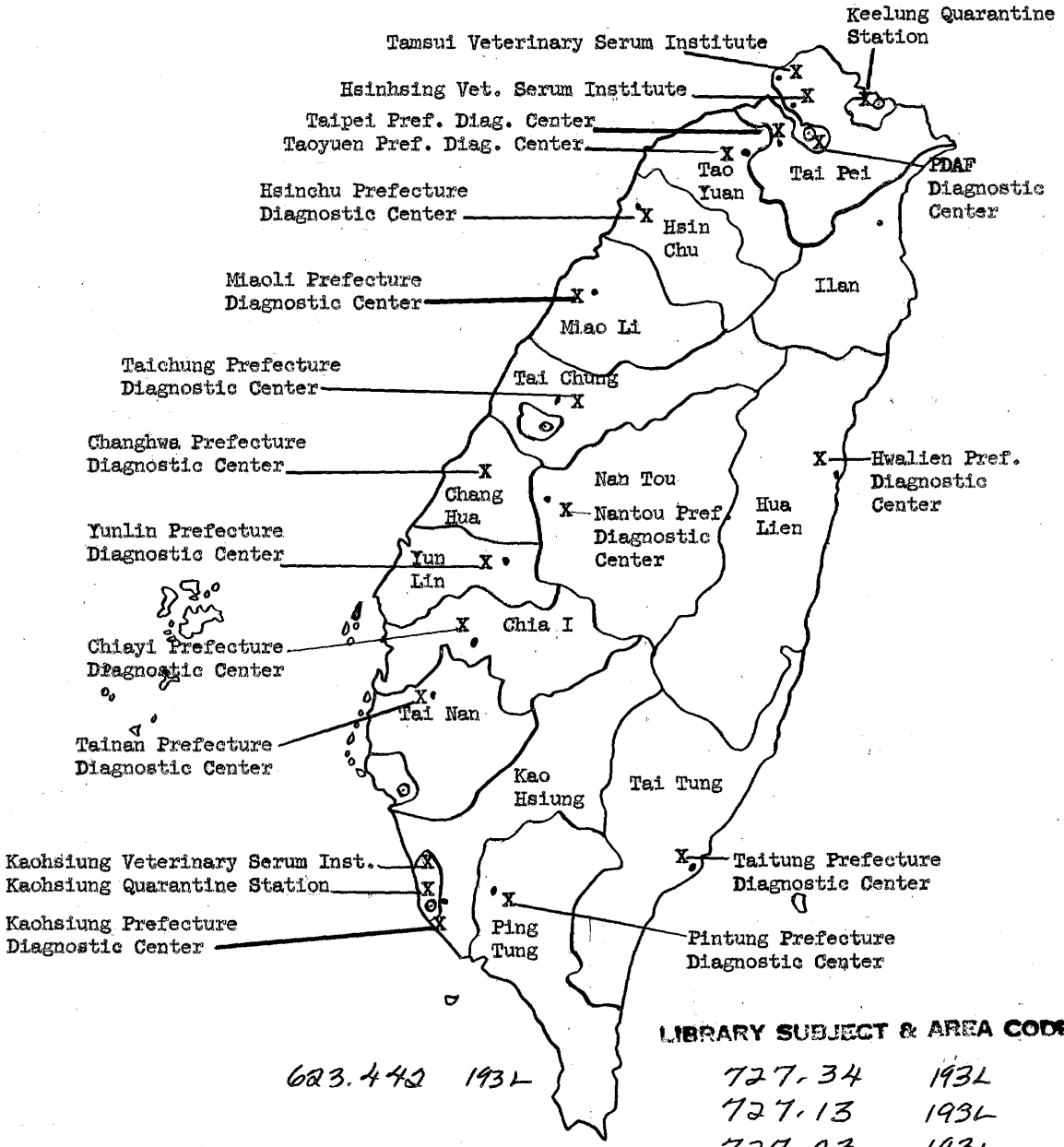
Distribution of Diagnostic Centers, Serum Plants and Quarantine Stations in Taiwan



Enclosure (C)